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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/572,755

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EXAMINER

MEROUAN, ABDERRAHIM

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/572,755	<b>Applicant(s)</b> HESS, RAUL	
	<b>Examiner</b> ABDERRAHIM MEROUAN	<b>Art Unit</b> 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/19/2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made

2. Claims 11-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartel et al (US PATENT 6337749 B1), hereinafter referred as Hartel, in view of Williams (U.S. Patent 6300595 B1) hereinafter referred as Williams.

3. As per claim 11 Hartel discloses;

A process for the multi-layered removal of material(Hartel, Column 4, lines 39 to 43) from a work piece having an arbitrary shaped three-dimensional surface (Hartel, Column 3, lines 2 to 6) comprising the steps of:

approximating the surface of the work piece (Hartel, Column 2, lines 12 to 16) having the arbitrary shaped three-dimensional surface (Hartel, Column 3, lines 2 to 6) through a plurality of polygons (Hartel, Column 2, lines 48 to 52) in the form of superposed polygon networks(Hartel,

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Column 2, lines 58 to 62); assigning each polygon of the polygon network to a work area(Hartel, Column 3, lines 50 to 58), and removing material in a point-wise manner from each work area by the laser, thereby generating a surface structure on the three-dimensional surface (Hartel, Column 4, lines 39 to 46).

Hartel doesn't disclose:

determining work areas to be machined on the three-dimensional surface of the work piece through the focal cuboid of a removal agent .However, William discloses: determining work areas to be machined on the three-dimensional surface of the work piece through the focal cuboid of a removal agent (William, Column 3, lines 18 to 43);

It would have been obvious to one skilled in the art, at the time of the Applicant's invention, to incorporate the teachings of William into the process taught by Hartel, because through such incorporation would produce structure on a workpiece with high quality.

4. As per claim 12, Hartel discloses:

The process, wherein the removal agent is a laser (Hartel, Column 1, lines 21 to 26).

5. As per claim 13, Hartel discloses: The process according to claim 11,

Hartel doesn't disclose: the surface structure is described by at least one grey level bitmap. However, William discloses: the surface structure is described by at least one grey level bitmap (William, Figure 2 and Column 2, lines 25 to 30).

6. As per claim 14, Hartel discloses: The process according to claim 13,

Hartel doesn't disclose: the grey level bitmap includes image spots of different grey levels or different color levels. However, William discloses: the grey level bitmap includes image spots of different grey levels or different color levels (William, Column 2, lines 19 to 23).

7. As per claim 15, Hartel discloses: The process according to claim 14,

Hartel doesn't disclose: a depth of the material removal is determined by one of, a brightness of the grey level corresponding to each image spot of the grey level bit map or an intensity of the color level. However, William discloses; a depth of the material removal is determined by one of, a brightness of the grey level corresponding to each image spot of the grey level bit map or an intensity of the color level (William, Column 7, lines 15 to 20).

8. As per claim 16, Hartel discloses: The process according to claim 15;

Hartel doesn't disclose: removal of the material is carried out in a number of layers corresponding to a value of the grey level. William discloses: removal of the material is carried out in a number of layers corresponding to a value of the grey level (William, Column 8, lines 41 to 45).

9. As per claim 17, Hartel discloses: The process; each of the layers is associated with its own polygon network (Hartel, Column 2, lines 58 to 60).

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10. As per claim 18, Hartel discloses: The process, wherein each polygon to be manipulated in each layer does not have a border portion in common with a previously manipulated polygon (Hartel, Column 2, lines 61 and 62).

11. As per claim 19, Hartel discloses:

A process for the multi-layered removal of material (Hartel, Column 4, lines 39 to 43) from a three-dimensional surface of any shape (Hartel, Column 3, lines 2 to 6) comprising the steps of: generating a three-dimensional computer model (Hartel, Column 2, lines 12 to 16) of the three-dimensional surface of the work piece (Hartel, Column 3, lines 2 to 6) described by a first polygon network (Hartel, Column 2, lines 48 to 52);

determining work areas to be manipulated for removal of material on the three-dimensional surface of the work piece by means of locating a work area (Hartel, Column 3, lines 50 to 52) in the focal square of a removal agent (Hartel, Column 1, lines 21 to 26), which is a laser (Hartel, Column 1, lines 21 to 26); wherein the work areas comprise single layers (Hartel, Column 4, lines 39 to 41)., each of the layers describing a polygon network (Hartel, Column 4, lines 39 and 40)., such that the sum of the work areas correspond to the surface of the workpiece (Hartel, Column 4, lines 22 to 27). and the sum of the layers correspond to the surface structure of the work piece (Hartel, Column 4, lines 39 to 43);

-wherein the surface of the work piece is approximated through superposing second polygon networks having a plurality of polygons and wherein the superposed polygon networks are offset to each other; (Hartel, Column 2, lines 56 to 60);

- assigning each polygon of each polygon network within the work area (Hartel, Column 3, lines

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50 to 58), with a grey level bitmap from a parallel projection of the master texture bitmap onto the polygon within the work area (Hartel, Column 2, lines 28 to 34); and removing the material by means of the laser in each layer in correspondence to the values of the grey level bitmap (Hartel, Column 2, lines 23 to 28)

Hartel doesn't disclose: providing one or more master texture bitmaps defining two-dimensional spaces; wherein three-dimensional corners of the polygons of the first polygon network correspond to two-dimensional image spots in one or more of the master texture bitmap; thereby translating the polygons into the two-dimensional space of the master texture bitmap; wherein the master texture bitmap comprises a plurality of image spots; each of which is defined by a grey level value corresponding to the material to be removed. However, William discloses; providing one or more master texture bitmaps defining two-dimensional spaces (William, Column 2, lines 35 to 40); wherein three-dimensional corners of the polygons of the first polygon network correspond to two-dimensional image spots in one or more of the master texture bitmap (William, Column 2, lines 51 to 57); thereby translating the polygons into the two-dimensional space of the master texture bitmap (William, Column 3, lines 1 and 2); wherein the master texture bitmap comprises a plurality of image spots (William, Column 6, lines 49 to 51); each of which is defined by a grey level value corresponding to the material to be removed (William, Column 7, lines 7 to 10).

12. As per claim 20, Hartel discloses:

The process, wherein the original computer model is derived from the description of the work piece by CAD-(spline) -surfaces, which result in an original polygon network (Hartel, Column 1,

lines 64 to 67 and Column 2, lines 1 and 2).

13. As per claim 21, Hartel discloses: The process according to claim 19,

Hartel doesn't disclose: wherein the brightness values of the grey level of the grey level bitmaps either before or during manipulation of the surface of the workpiece are computed back to the master texture bitmap. However, William discloses: wherein the brightness values of the grey level of the grey level bitmaps (William, Column 4, lines 23 to 28); either before or during manipulation of the surface of the workpiece are computed back to the master texture bitmap (William, Column 3, lines 64 to 67 and Column 7, lines 1 and 21).

### ***Response to Arguments***

14. Applicant's arguments with respect to claims 11-21 have been considered but are moot in view of the new ground(s) of rejection.

15. Applicant's arguments directed to claims 11-21 have been fully considered but they are not persuasive.

16. In response to applicants argument for claim 11, applicant argues that the prior art doesn't teach: "Polygons in a polygons network" This argument is not persuasive because Hartel clearly stated that; This approach already leads to natural cell patterns, however the boundary lines of the cells are always straight and hence the cells are polygons. In some circumstances this geometry is immediately recognized by the naked eye and thus constitutes a drawback if imitation of pores and/or grain of natural leather is desired. (see, Column 2, lines 48 to 52)



17. In response to applicants argument for claim 11, applicant argues that the prior art doesn't teach:” determining work areas to be machined on the three-dimensional surface of the work piece through the focal cuboid of a removal agent” This argument is not persuasive because William clearly stated that:” My method is best used in connection with a laser engraving system which includes its own program software capable of transforming lined artwork into control signals for delivery to a laser control assembly. One laser engraving system utilized is the FOBA-LAS F94 or F114 laser engraving system designed for mold surface engraving. Either system is available from FOBA.RTM. North America Laser Systems in Lee's Summit, Mo. The FOBA.RTM. system includes Fobagraf software capable of reading the lined artwork depicting the design which is to be engraved into the mold surface. The design artwork is entered into the system in a file format. The laser system software recognizes lines on the artwork as laser paths. In turn, the software generates control signals for delivery to the laser control assembly. The control assembly directs the laser along the workpiece in correspondence to the lines on the design artwork. My invention is directed to a method of creating a plurality of pieces of composite artwork which directs the laser at a constant power along the workpiece in a layer-by-layer manner to arrive at the desired engraving” (See, Column 3, lines 18 to 43);

### ***Conclusion***

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ABDERRAHIM MEROUAN whose telephone number is (571)270-5254. The examiner can normally be reached on Monday to Friday 7:30 AM to 5:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571) 272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Abderrahim Merouan

Patent Examiner

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/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2628